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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/960,536	09/21/2001	Hooman Darabi	42286/RRT/B600	5285

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EXAMINER

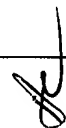
LU, JIA

ART UNIT	PAPER NUMBER
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2634

DATE MAILED: 12/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/960,536	Applicant(s) DARABI ET AL.	
	Examiner Jia W. Lu	Art Unit 2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5,7-9,13,14,17,19 and 20 is/are rejected.
- 7) ☒ Claim(s) 3,4,6,10-12,15,16 and 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 September 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>09/24/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to because of minor informalities.

a. In figure 2, element 28 should be labeled "slicer".

b. In figure 7, " $V_p T V_v / R$ " should be " $V_p + V_v / R$ ".

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The abstract of the disclosure is objected to because of the following:
 - a. While the cross-coupled multiplier is taught in paragraph 23, line 11-13 to “multiply I and Q signals with differentiated Q and I respectively”, abstract teaches the multiplier to multiply the I and Q signals with differentiated I and Q, respectively. Correction is required. See MPEP § 608.01(b).
 - b. Applicant is reminded of the proper format for an abstract of the disclosure. The abstract should be limited to a single paragraph.
3. The disclosure is objected to because of the following informalities:
 - a. In paragraph 10, lines 6-11 teaches the multiplier to multiply the I and Q signals with differentiated I and Q, respectively; this does not agree with the cross-coupled multiplier that is taught in paragraph 23, line 11-13 (see 2 above).
 - b. Paragraph 13, line 1, “an IF demodulator” should be “of an IF demodulator”.
 - c. Paragraph 28, line 15, “fast attach” should be “fast attack”.
 - d. Paragraph 34, line 2, “multiplier 22” should be “multiplier 25”.
 - e. Paragraph 41, line 3, “pick” should be “peak”.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 9 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Mohindra Rishi in US Patent #6,127,884.
 - a. Regarding claim 9, Rishi discloses a demodulator that receives I and Q portions of a signal (fig. 1, elements 73 and 74), differentiates the I and Q signals, multiplies I and Q signals to obtain frequency information (fig. 1 elements 75 and 76), and converts frequency information into digital data (fig. 1 elements 62 and 63), suitable for IF signals (column 1, lines 20-21).
 - b. Regarding claim 13, Rishi shows the use of amplifiers for amplifying I and Q signals in demodulator as mentioned above (fig. 1, elements 51 and 54).
5. Claims 1, 2, 5, 7, 8, 14, 17, 19 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Ahmadreza Rofougaran in U.S. patent 6,738,601.
 - a. Regarding claim 1, Rofougaran discloses a receiver (fig. 2, element 10) having an amplifier (fig. 2, element 22), mixer for each I and Q components of signal (fig. 2, element 24), an analog filter for processing both I and Q components of signal (fig. 2, element 26), and a demodulator (fig. 2, element 26) for extracting information from received I and Q

- components of signal. Rofougaran also teaches the use of an RC calibration system (column 40, lines 1-3) for tuning the receiver.
- b. Regarding claim 2, Rofougaran discloses a demodulator within receiver described above, comprising differentiators for differentiating I and Q signal components (fig. 21, elements 329 and 330), cross-coupled multipliers for the I, Q, and differentiated I and Q signal components (fig. 21, elements 331 and 332), and a slicer for data conversion (fig. 21, element 334). Rofougaran also discloses the use of IF in the system comprising demodulator (column 6, line 14).
- c. Regarding claim 5, Rofougaran discloses a slicer in receiver described above, comprising a peak detector (fig. 24, element 346), a valley detector (fig. 24, element 347), an averager (fig. 24, element 348 and 349), and a comparator for comparing the output to a threshold (fig. 24, elements 345 and 350).
- d. Regarding claim 7, Rofougaran shows a band pass filter for shaping I and Q signals in receiver (fig. 2, element 26).
- e. Regarding claim 8, Rofougaran teaches the use of limiters as programmable amplifiers for I and Q signals (fig. 2, element 28).
- f. Regarding claim 14, Rofougaran discloses a demodulator as described in item b above.
- g. Regarding claim 17, Rofougaran discloses a slicer in demodulator described in d above, comprising a peak detector described in c above.

- h. Regarding claim 19, Rofougaran shows a band pass filter for use in system comprising the demodulator (fig. 2, element 26).
- i. Regarding claim 20, Rofougaran shows a low pass filter for use in system comprising the demodulator (fig. 2, element 32).

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 2, 9 and 14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The multiplying technique taught in each of these claims, "multiplying the differentiated I signal with the I signal and multiplying the differentiated Q signal with the Q signal", are not supported by the specification. The specification teaches the multiplying of the differentiated I signal with the Q signal and multiplying the differentiated Q signal with the I signal (see paragraph 23, lines 11-13).

Allowable Subject Matter

7. Claims 3, 4, 6, 10-12, 15-16, and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jia W. Lu whose telephone number is 571-272-6042. The examiner can normally be reached on Mon- Fri, 9:30AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (571)272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jia Lu
Examiner


STEPHEN CHIN
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